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NEW DISTRIBUTIONAL RECORDS FOR THE ANT GENUS *CARDIOCONDYLA* IN THE NEW WORLD (HYMENOPTERA: FORMICIDAE)

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Abstract.—Five species of the genus *Cardiocondyla* occur in the New World. All of the species have been recorded from the United States, the genus was not recorded from South America until 1937. I list a number of new localities for most of the species, including numerous localities in Latin America. Specifically, *C. emeryi* Forel is recorded for the first time from Colombia, Costa Rica and Venezuela; *C. nuda* from Alabama and Colombia, *C. wroughtoni* from Mexico, Panama and Colombia. Several additional localities are also provided for these and other species in this genus. A key is provided for the identification of workers in the New World.

Key Words.—Insecta, introductions, cosmotropical, Latin America, predation, nesting site, invasions, introduced species

Cardiocondyla is an Old World genus containing about 30 (Snelling 1974) or 40 (Bolton 1982) species. The females and workers are morphologically uniform, the males are so different they have been described in three separate genera (Kugler, 1983). Most species found in the New World are cosmotropical and all of the species in the New World (with the possible exceptions of *C. ectopia* Snelling and *C. venustula* Wheeler) have been introduced (Creighton 1950, Bolton 1982, Heinze et al. 1993). Even though these ants have been introduced, and could be expected to be pests, they are rarely collected. Little is known of their biology, but they are apparently predators (Creighton & Snelling 1974, Lupo & Gerling 1984), feed on dead insects (Wilson 1959) feed on nectar of *Euphorbia* (Creighton & Snelling 1974) or tend Homoptera (Smith 1944). Most species nest in sandy soil and the nest entrances are very cryptic (Creighton & Snelling 1974); *C. wroughtoni* (Forel) nests in galls, figs and other plant tissue (Lupo & Galil 1984).

I have accumulated significant new distributional records for *Cardiocondyla* for about 25 years, and felt that a listing of these localities would be useful, together with an updated key. Only New World records are listed. The previous distributions are taken from Smith (1944), Creighton (1950), Creighton & Snelling (1974), Kempf (1972), Smith (1979), Bolton (1982), Dowell & Gill (1989), and Maes & MacKay (1993). All of the specimens are in the Laboratory of Environmental Biology of the University of Texas, El Paso.

LIST OF NEW WORLD DISTRIBUTIONS OF THE SPECIES

Cardiocondyla ectopia Snelling

California (Orange and Los Angeles counties), Arizona. This species may be a synonym of *C. nuda* var. *mauritanica* (Kugler 1983).

New Records.—USA. CALIFORNIA. *LOS ANGELES Co.:* Chino, 23 Sep 1972, W. MacKay, #72-100; *ORANGE Co.:* Cypress, 22 Sep 1972, W. MacKay, #72-37.

Cardiocondyla emeryi Forel

Southern Florida, Texas, St. Thomas, Virgin Islands, Anguilla, Bahamas, Bermuda, Cuba, Jamaica, Dominican Republic, Mona, Puerto Rico, Culebra, Guadeloupe, St. Vincent, Barbados, Mexico, Nicaragua, Brazil. Kugler (1983) concluded that Borgmeier's (1937) report of this species from Brazil is based on a misidentification, that the correct identification is *C. wroughtoni*. *Cardiocondyla wroughtoni* and *C. emeryi* are easily confused.

New Records.—USA. FLORIDA. *HIGHLANDS Co.:* 13 km S of Archbold Biological Station, 20 Oct 1982, M. Deyrup. BRAZIL. *MATO GROSSO DO SUL:* 3 km N of Jaraguari, 17 Oct 1989, S. Porter, #12899; 4 km NE of Rio Verde, 17 Oct 1989, S. Porter, #'s 12924, 12925; 10 km N of Posto Chapadão, 18 Oct 1989, S. Porter, #12971. COLOMBIA. *VALLE:* El Cerrito, Bosque el Matiro, 27 Jan 1995, Myr 55, I. Armbrecht. COSTA RICA. *GUANACASTE:* Loma Barbudal, 3 Jun 1989, S. B. Vinson, #12272; Loma Barbudal, Feb 1990, S. B. Vinson, #13197. MEXICO. *SAN LUIS POTOSI:* Matehuala, 10 Jun 1988, 1490m, W. MacKay, #'s 10974-4, 1096-3 & 10970-1. NICARAGUA. (*LEON*): Cosiguina, 25 Aug 1989, F. Reinboldt. VENEZUELA. *DISTRITO FEDERAL:* La Guaira, 3 Jan 1992, E. Palacio.

Cardiocondyla nuda (Mayr)

Florida, Georgia, Louisiana, California, Texas, Hawaii, Nicaragua.

New Records.—USA. LOUISIANA. *IBERIA Co.:* New Iberia, 19 Aug 1987, W. MacKay, #9770. FLORIDA. *HIGHLANDS Co.:* Archbold Biological Station, Lake Placid, 1 Feb 1985, M. Deyrup. ALABAMA. *MOBILE Co.:* Dauphin Island, 25 Aug 1987, E. MacKay, #9874. COLOMBIA. *AMAZONAS:* Amacayaca, Jan 1991, L. Mendoza. *CUNDINAMARCA:* Fusugasugá, 8 Dec 1975, W. & E. MacKay, #575. *HUILA:* 3 km N of Rivera, 29 Dec 1981, W. & E. MacKay, #5695. *META:* Puerto Gaitán, 18 Dec 1975, #716-C. *SANTANDER:* Bucaramanga, 25 Dec 1973, #73-271-B. *VALLE:* Loboguerrero, 26 Jun 1989, F. Fernández, #11957, #11962; El Cerrito, Bosque el Matiro, 27 Jan 1995, Myr 45, I. Armbrecht. NICARAGUA. *LEON:* León, Mar 1991, B. Garcete; Solentiname, July 1989, F. Reinboldt.

Cardiocondyla venustula Wheeler

Florida, Louisiana, Antilles, Culebra, Cuba, Haiti, Mona, Puerto Rico.

New Records.—None.

Cardiocondyla wroughtoni (Forel)

Florida, Georgia. Kugler (1983) suggests this species may occur in Brazil.

New Records.—USA. FLORIDA. *HIGHLANDS Co.:* Archbold Biological Station, 8 Sep 1993, M. Deyrup. COLOMBIA. *VALLE:* Cali, 6 Jan 1988, W. & E. MacKay, #1033. MEXICO. *TAMAULIPAS:* Gómez Farías, 25 Sep 1987, W. MacKay, #10071. PANAMA. *COLON:* Gamboa Parque, 29 Apr 1988, D. Quintero, #4.

Key to Cardiocondyla of the New World

Kugler (1983) includes a key to the males of many species. Creighton's key (1950) can be modified to include workers of all of the known New World species.

1a. Dorsum of the mesosoma, in profile, with mesopropodeal suture unimpressed, or at most very feebly impressed; promesonotal suture usually obsolete on dorsum; mesopropodeal suture poorly marked on dorsum; length of propodeal spines usually short, about ¼ distance between tips ..... *nuda*

1b. Dorsum of mesosoma, in profile, with mesopropodeal suture distinctly impressed; mesopropodeal suture clearly marked on dorsum; propodeal spines variable in length 2

2a(1b). Propodeum armed with a pair of very small denticles that are not spinose; antennal scape failing to reach occipital margin by an amount less than the greatest thickness of scape ..... *venustula*

2b. Propodeum armed with a pair of spines or well developed angles; antennal scape failing to reach occipital margin by an amount at least as great as the length of first funicular joint 3

3a(2b). Node of petiole globular, seen from above, usually broader than long; propodeal spines relatively long, usually more than ½ length of distance between tips; anterior border of postpetiole distinctly concave when seen from above ..... *wroughtoni*

3b. Node of petiole elongate, seen from above, longer than broad; propodeal spines short, length less than ½ distance between tips; anterior border of postpetiole straight or feebly convex or even feebly concave when seen from above 4

4a(3b). Projections on propodeum angulate, not spinose, length about ¼ distance between tips; anterior clypeal border weakly concave; node of petiole not laterally compressed near apex. (California and Arizona) ..... *ectopia*

4b. Propodeal spines relatively sharp and spinose, length up to about ½ distance between tips; anterior clypeal border straight or slightly convex; node of petiole laterally compressed near apex. (not recorded from California or Arizona). ..... *emeryi*

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